

## Claims

1. Method for quick access to data networks (INT), in which data  
terminal devices (D1, D2, D3) of subscribers are each connected  
by means of a modem (M1, M2, M3) respectively by way of a digital  
subscriber line (DSL1, DSL2, DSL3) respectively to an access  
multiplexer (DSLAM), whereby for the purposes of data transfer  
between the data terminal devices (D1, D2, D3) and an access  
server (B-RAS) which is located downstream of the access  
multiplexer (DSLAM), which serves to check the access  
authorization of the data terminal devices (D1, D2, D3) and  
establish the access to the data network (INT), the Point-to-  
Point Protocol over Ethernet PPPoE is used,  
characterized in that  
the link from the access multiplexer (DSLAM) to the access server  
(B-RAS) and to further components located downstream is  
implemented by means of an Ethernet network (ETH).
2. Method according to Claim 1,  
characterized in that  
an Ethernet bridge (EB) is assigned to the access multiplexer  
(DSLAM) or is integrated into the access multiplexer (DSLAM),  
where the Ethernet bridge (EB) is equipped with filtering  
facilities through which the PPPoE headers contained in received  
Ethernet frames are evaluated and whereby:
  - Ethernet frames are routed to the Ethernet bridge (EB) if the  
PPPoE header can be assigned to an existing connection confirmed  
by the access server (B-RAS), or if the PPPoE header can be  
assigned to connection which is set up, whereby a timer is  
started when the connection is set up and when the timer times  
out the MAC address of the sending Ethernet component is removed  
from the routing tables of the Ethernet bridge (EB) provided that  
no confirmation of the connection set-up is given by the access  
server (B-RAS) before the timer times out, and
  - all other Ethernet frames which contain a PPPoE header are  
discarded, and
  - all Ethernet frames which do not contain a PPPoE header are  
discarded.

3. Method according to one of Claims 1 or 2,  
characterized in that  
Ethernet frames are discarded randomly or specifically selected  
for the data transfer direction toward the data terminal device  
5 (D1, D2, D3) in a receive buffer of an Ethernet interface through  
which the access multiplexer (DSLAM) is connected to the Ethernet  
network (ETH), on the basis of the load status of send buffers  
which are assigned to the digital subscriber lines (DSL1, DSL2,  
DSL3).

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4. Method according to Claim 3,  
characterized in that  
Ethernet frames to be assigned to the respective digital  
subscriber line (DSL1, DSL2, DSL3) are discarded if a send buffer  
15 overload condition on the digital subscriber line (DSL1, DSL2,  
DSL3) is predicted by a control logic circuit.

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5. Method according to one of Claims 3 or 4,  
characterized in that  
connection control frames which can be recognized on the basis of  
their Ethernet header are not discarded.

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6. Method according to one of Claims 1 to 5,  
characterized in that  
the data network (INT) is the Internet.

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7. Access multiplexer (DSLAM) for quick access to data networks  
(INT), to which data terminal devices (D1, D2, D3) of subscribers  
are each connected by means of a modem (M1, M2, M3) respectively  
by way of a digital subscriber line (DSL1, DSL2, DSL3)  
respectively, whereby for the purposes of data transfer between  
the data terminal devices (D1, D2, D3) and an access server (B-  
RAS) which is located downstream of the access multiplexer  
(DSLAM), which serves to check the access authorization of the  
35 data terminal devices (D1, D2, D3) and establish the access to  
the data network (INT), the Point-to-Point Protocol over Ethernet  
PPPoE is used,  
characterized in that

the access multiplexer (DSLAM) is connected to the access server (B-RAS) and to further components located downstream by means of an Ethernet network (ETH).

- 5 8. Access multiplexer (DSLAM) according to Claim 7, characterized in that

the access multiplexer has an Ethernet bridge (EB), whereby the Ethernet bridge (EB) has filtering facilities for evaluating the PPPoE headers contained in received Ethernet frames, and whereby:

- 10 - Ethernet frames are routed to the Ethernet bridge (EB) if the PPPoE header can be assigned to an existing connection confirmed by the access server, or if the PPPoE header can be assigned to connection which is set up, whereby a timer is started when the connection is set up and when the timer times out the MAC address  
15 of the sending Ethernet component is removed from the routing tables of the Ethernet bridge (EB) provided that no confirmation of the connection set-up is given by the access server (B-RAS) before the timer times out, and  
- all other Ethernet frames which contain a PPPoE header are  
20 discarded, and  
- all Ethernet frames which do not contain a PPPoE header are discarded.

9. Access multiplexer (DSLAM) according to one of Claims 7 or 8,  
25 characterized in that  
the access multiplexer (DSLAM) has means offering overload protection for the data transfer direction toward the data terminal device (D1, D2, D3), which comprise means for monitoring a receive buffer of an Ethernet interface through which the  
30 access multiplexer (DSLAM) is connected to the Ethernet network (ETH), as well as means for monitoring the load status of send buffers which are assigned to the digital subscriber lines (DSL1, DSL2, DSL3), and also means for the random or specific selection and discard of Ethernet frames.

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10. Access multiplexer (DSLAM) according to Claim 9, characterized in that

the access multiplexer (DSLAM) has a control logic circuit with means for predicting an overload condition for the send buffer of

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the digital subscriber line (DSL1, DSL2, DSL3) and means for influencing the receive buffer in order to discard Ethernet frames which are to be assigned to the respective digital subscriber line (DSL1, DSL2, DSL3).

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11. Access multiplexer (DSLAM) according to one of Claims 9 or 10, characterized in that

the control logic circuit of the access multiplexer (DSLAM) has means for the identification of connection control frames on the basis of their Ethernet header and means for influencing the receive buffer such that connection control frames are not discarded.

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